



| | |
|-----------------|---------------|
| WEAR | NORMAL |
| CONTAMINATION | NORMAL |
| FLUID CONDITION | NORMAL |

Area
Y.S. CHI
Machine Id
[Y.S. CHI] 001 503877-1
Component
Port Main Engine
Fluid
CHEVRON DELO 710 LS (350 GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

| Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
|----------------|-----|-------------|-----------|--------------------|-------------|-------------|
| Sample Number | | Client Info | | MW0065946 | MW0065960 | MW0065956 |
| Sample Date | | Client Info | | 08 Apr 2024 | 01 Apr 2024 | 01 Mar 2024 |
| Machine Age | hrs | Client Info | | 32501 | 32300 | 31573 |
| Oil Age | hrs | Client Info | | 2779 | 2611 | 1847 |
| Filter Age | hrs | Client Info | | 344 | 176 | 452 |
| Oil Changed | | Client Info | | Changed | Changed | Changed |
| Filter Changed | | Client Info | | Changed | Changed | Changed |
| Sample Status | | | | NORMAL | NORMAL | NORMAL |

WEAR

All component wear rates are normal.

| | | | | | | |
|--------------|--------|-------------|------|--------------|------|------|
| Iron | ppm | ASTM D5185m | >75 | 12 | 11 | 9 |
| Chromium | ppm | ASTM D5185m | >8 | 1 | 1 | <1 |
| Nickel | ppm | ASTM D5185m | >2 | <1 | <1 | <1 |
| Titanium | ppm | ASTM D5185m | >3 | <1 | <1 | <1 |
| Silver | ppm | ASTM D5185m | >2 | <1 | <1 | <1 |
| Aluminum | ppm | ASTM D5185m | >15 | 2 | 2 | 2 |
| Lead | ppm | ASTM D5185m | >18 | <1 | <1 | 1 |
| Copper | ppm | ASTM D5185m | >80 | 2 | 2 | 2 |
| Tin | ppm | ASTM D5185m | >14 | 1 | 1 | 1 |
| Vanadium | ppm | ASTM D5185m | | <1 | <1 | <1 |
| White Metal | scalar | *Visual | NONE | NONE | NONE | NONE |
| Yellow Metal | scalar | *Visual | NONE | NONE | NONE | NONE |

CONTAMINATION

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

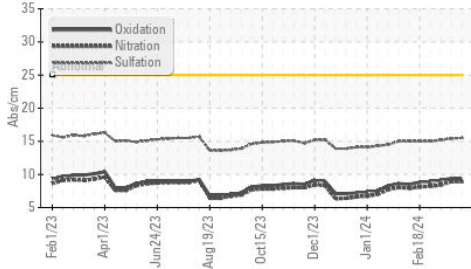
| | | | | | | |
|------------------|----------|-------------|-------|----------------|-------|-------|
| Silicon | ppm | ASTM D5185m | >20 | 7 | 7 | 7 |
| Potassium | ppm | ASTM D5185m | >20 | 3 | 3 | 3 |
| Fuel | | WC Method | >4.0 | <1.0 | <1.0 | <1.0 |
| Water | | WC Method | >0.1 | NEG | NEG | NEG |
| Glycol | | WC Method | | NEG | NEG | NEG |
| Soot % | % | *ASTM D7844 | | 0.5 | 0.5 | 0.4 |
| Nitration | Abs/cm | *ASTM D7624 | >20 | 8.9 | 8.9 | 8.4 |
| Sulfation | Abs/.1mm | *ASTM D7415 | >30 | 15.5 | 15.4 | 15.2 |
| Silt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Debris | scalar | *Visual | NONE | NONE | NONE | NONE |
| Sand/Dirt | scalar | *Visual | NONE | NONE | NONE | NONE |
| Appearance | scalar | *Visual | NORML | NORML | NORML | NORML |
| Odor | scalar | *Visual | NORML | NORML | NORML | NORML |
| Emulsified Water | scalar | *Visual | >0.1 | NEG | NEG | NEG |

FLUID CONDITION

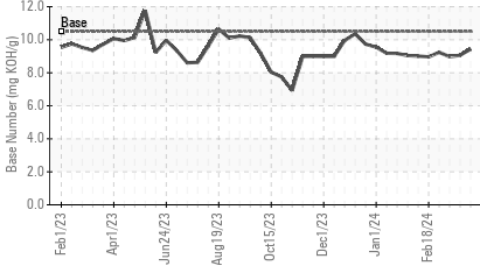
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

| | | | | | | |
|------------------|----------|-------------|------|--------------|------|------|
| Sodium | ppm | ASTM D5185m | >75 | 0 | 0 | 0 |
| Boron | ppm | ASTM D5185m | | 38 | 37 | 37 |
| Barium | ppm | ASTM D5185m | | 0 | 0 | 1 |
| Molybdenum | ppm | ASTM D5185m | | 48 | 47 | 48 |
| Manganese | ppm | ASTM D5185m | | <1 | <1 | 1 |
| Magnesium | ppm | ASTM D5185m | | 11 | 11 | 12 |
| Calcium | ppm | ASTM D5185m | | 3452 | 3419 | 3355 |
| Phosphorus | ppm | ASTM D5185m | | 9 | 7 | 12 |
| Zinc | ppm | ASTM D5185m | | <1 | <1 | 6 |
| Sulfur | ppm | ASTM D5185m | | 2629 | 2699 | 2196 |
| Oxidation | Abs/.1mm | *ASTM D7414 | >25 | 9.3 | 9.4 | 9.1 |
| Base Number (BN) | mg KOH/g | ASTM D2896 | 10.5 | 9.43 | 9.06 | 8.97 |
| Visc @ 100°C | cSt | ASTM D445 | 15.5 | 14.3 | 14.3 | 14.1 |

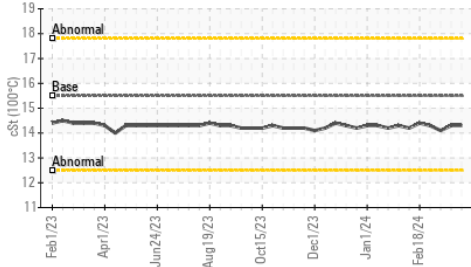
FT-IR (Direct Trend)



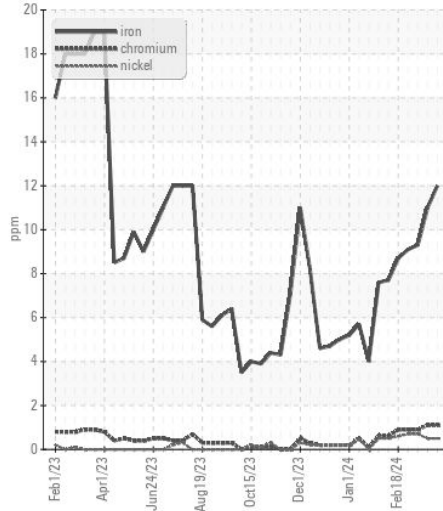
Base Number



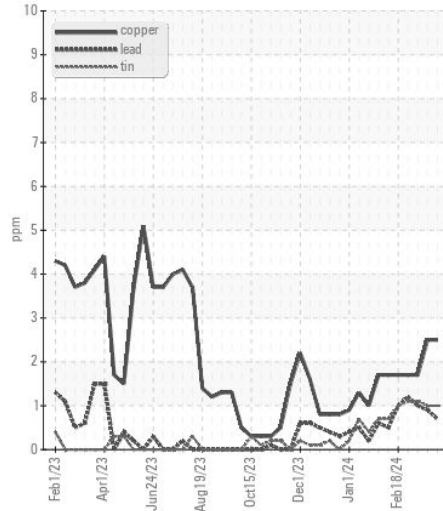
Viscosity @ 100°C



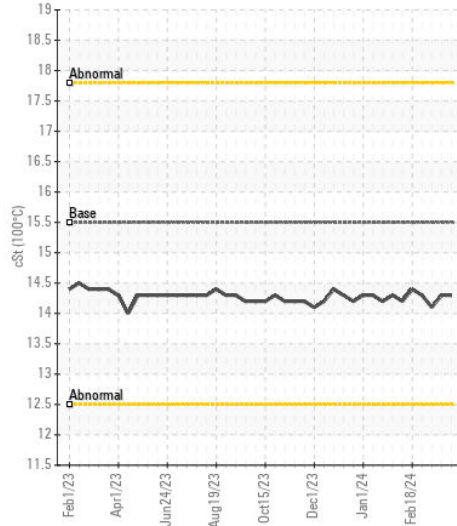
Ferrous Alloys



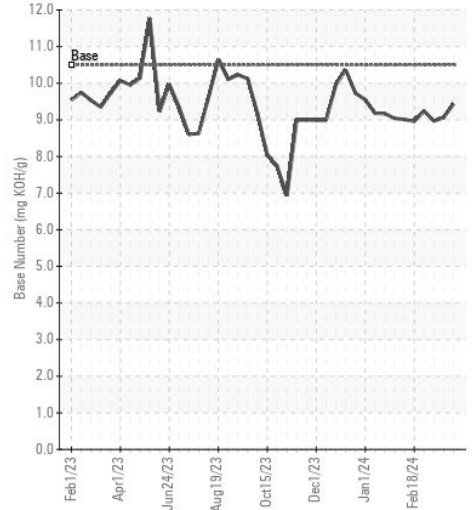
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0065946
Lab Number : 06186901
Unique Number : 11043653
Test Package : MAR 2
Received : 21 May 2024
Tested : 23 May 2024
Diagnosed : 23 May 2024 - Wes Davis

INGRAM BARGE
 900 S 3RD ST
 PADUCAH, KY
 US 42003

Contact: ANTHONY VAN CURA
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 F: (615)695-3697

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)